131 through Mongolia to China, routes which are no less important at present. For these reasons the inclusion of Transbaykal in the comprehensive overall concept of the "Soviet Far East" seems not only justified but even necessary for better understanding of how things fit together.

/12/ Through the Far Eastern regions the Soviet Union has a continental coast on the Pacific, which is more than 10,000 kilometers long, and through this she has become an important neighbor /Anlieger/. The outcome of World War II has brought the Soviet Union into possession of southern Sakhalin and the Kurils. With this the Japanese protective chain of the Kuril was eliminated, and the Sea of Okhotsk, with an area of 1,530,000 square kilometers, became for all practical purposes an internal sea of the Soviet Union; and it is now even officially regarded as belonging to the national sphere of the USSR. This pressure of Soviet power toward the Pacific Ocean has resulted in broader prospects of naval development for the Soviet Union than in the past, since the naval development had had to be limited to the continental coast. In this connection, Sakhalin Island, pointing [312] toward the Japanese island empire and separated from Hokkaido only by La Perouse Way, scarcely 50 kilometers wide, deserves special attention since, through a dam completed in 1952, it has been linked to the continent and for all practical purposes has become a part of the continent. With the southwest side of Sakhalin and the Maritime Krai, the Soviet Union now lies also on the Sea of Japan. Through her large section on the coast and through her possession of the islands extending in front of the coast, the Soviet Union has the prerequisites, not everywhere favorable but still sufficient, for developing into a Pacific sea power. Even though the Russians, being a continental people, have in the past always given preference to land routes, there are still numerous indications that the sea also is not foreign to them. If the Soviet Union still today does not take the corresponding position, that does not mean that it must always remain so. Pretensions to such a position have very probably been proclaimed in the intensive building up of the various harbors for military and trade purposes.

The greatest importance of the Far Eastern region for the Soviet Union lies in the fact that it guarantees access to the open sea to this strong continental power. Although the usefulness of the individual ports on the ocean within the Soviet Union's national territory is impaired and their importance reduced by unfavorable natural conditions, these ports exist, and their shortcomings have become a

000 even of raising it. However, this proposal has been tried out but little in practice.

132 134 312 /56/ In addition to the general water supply, the supplying of drinking water in the permafrost regions in winter causes many difficulties, especially for larger settlements. Since many rivers freeze to the ground, the water must often be gotten from far away. In many places artificially caused formations of ice on top of ice are used to help in smaller settlements. But it would lead us too far astray to go into detail here on the various and often also unique methods of procuring water.

132 134 316 The permafrost is also of great importance in connection with mining and with the extractions of natural resources generally. In pit mining the permafrost sets great hardness against the invasion of man. Even diamond drills fail sometimes, and, if the motor stops for even a moment, the drill freezes fast in the water of the hole being drilled. The pits and galleries are mostly firm and hold even without supporting beams, the danger of chokedamp is slight, and also ground water seldom appears, and only occasionally do water break-ins occur. In open mining the permafrost must be dynamited, but then the blocks knocked loose turn into bulky pulp. Gold extraction has to overcome special difficulties in the working of gold wash-works which mostly are in the permafrost and lie under a thick, unfrozen layer of earth which can be removed rather easily. In the most important gold regions the most modern machinery is employed to process the gold-bearing sand in one vein with everything from dredge to dressing-floor, but all these technically complete establishments conduct a difficult battle with the permafrost, whose hardness gives extraordinary resistance. The natural thawing under the air temperature of the summer proceeds so slowly that man must help it along. The primitive thawing with the aid of wood and coal fires has disappeared, and jets of water also do not suffice here. At present, steam is employed everywhere, and new announcements report that the use of electricity is being considered for the future.

132 134 The role played by permafrost in connection with vegetation is many sided, but the mutual relationships are still too little clarified. For the agrarian economy the permafrost is a more favorable factor as a source of ground dampness, especially in the interior which suffers from a shortage of summer rainfall. Here the dampness of the ground is a natural compensation. It is due to the exploitation of these favorable conditions that Soviet Russia has succeeded in spreading agriculture,

132 within 24 hours. These conditions, especially the paths of the cyclones, have still not been clarified in detail. The real rain period does not begin until early in July and lasts until the end of August. During this period there is rarely a week without several days of rain.

In addition to the already mentioned downpours, rainfall also occurs in the form of land rains. A very characteristic type has been designated as "subsequent rain" /Nachfolgeregen/ by Arseniev. This occurs when after a storm the day is sunny and still, and then in the evening rain falls again because of the condensation of the rising, very high humidity.

The abundant rainfall of summer causes the rivers to swell, and their high water occasionally spills over the banks, and often interrupts all traffic. In many places the water cannot flow off right away. It remains standing on the level fields. Grass areas turn into swamps. In the low, broad plains on the left side of the Amur, above [312] Khabarovsk, plains which were supposed to have been won for agriculture to supply the rapidly growing city, a large-scale system of drainage canals had to be created, not only in order to drain the ground but also in order to give the rainfall an easier opportunity to drain.

132 The great dampness along with the great heat endangers and decreases
241 the harvest of European types of grain. The grain shoots into grass but the corn yield is slight. The sprouting of the plants suffers from the dryness, while the blooming, ripening, and harvesting fall in the rain period. In this the dampness of the ground /66/Climate Diagram: Ulan Ude; Chita/ also plays a role, for, according to many reports, the yield of the grain fields in the hilly country on the mountain ridges and slopes is higher than the yield of the fields in the valley areas. The softening of the ground by the summer rains makes the use of machinery difficult, and this appeared as a restraining factor in the establishment of the kolkhoz system and the MTS (Machine Tractor Stations). In part steps had to be taken toward the construction of new machines. On the other hand

132 the climate fosters the development of vermin and fungus. The corns
137 of grain are not uncommonly attacked by a spore fungus (Fusareum roseum), which makes the bread "pianyi," i.e. drunken, as the Russians say, because when eaten it has an intoxicating effect and causes nausea. Fruit is distinguished by richness in liquid but by a poverty of sugar. The Manchurian-Chinese cultivated plants and the natural native plant world thrive especially. Characteristic for the forests is a rich underwood, but the trees--and this applies especially to the deciduous trees--are very susceptible to disease, often becoming hollow with internal

241 is still not sufficient to cover the deficit of the two other regions.

241
311

Area Under Cultivation Per Person as of 1938

	Total Area Under Cultivation in 1000 hectares	Area Under Cultivation Per Person in hectares	Total Area Devoted to Grain in 1000 hectares	Area Devoted to Grain Per Person in hectares
Soviet Union	136,943.1	0.80	102,411.0	0.60
Buryat-Mongol ASSR	386.7	0.71	348.0	0.65
Chita Oblast	592.1	0.51	543.0	0.47
Khabarovsk Oblast	580.8	0.41	446.0	0.31
Maritime Krai	318.3	0.35	216.0	0.24
Transbaykal and the Far Eastern Region	1,887.9	0.47	1,553.8	0.39

241 No statistics of equal worth are available for judging the development of agriculture from 1938 to the present, since no such statistics have been published since then. Instead a great number of bulletins from the Soviet press are on hand; but these contain only isolated data of a general type, or special reports from highly variable areas or even localities. It is difficult to form an overall picture from all these reports, but it is the only possibility of being able to get at least a glance at the development.

241
311

Many reports speak of an immigration which benefits both the industrial and also the agricultural sector. Also the enlargement of the area under cultivation and the raising of production often form the subject of these reports, and in this the results of the last Five Year Plan, up to 1950, are especially emphasized. In the steppe regions of the Chita Oblast a beginning has been made in the introduction of artificial irrigation. As a beginning for this, numerous canals were dug in 1948 which irrigated 12,850 hectares. In the vicinity of the big cities the greatest attention /130/ has been devoted to the development of farming near the city and especially to garden farming. In the surroundings of Vladivostok the setting up of 1,560 hectares of garden area in 1948 was envisaged in the framework of a great plan. Also in the Khabarovsk area important wild areas are being converted into cultivated land so as to ensure the feeding of the growing city.

• B12

133

(Captions to Map on page 235)

1. Baykal Daur
2. Nerchinsk Daur
3. Vitim Plateau and the northern mountain forest provinces
4. Olekma mountain country and the Olekminsk Stanovik
5. Oldoy-Zeya mountain country
6. Zeya-Bureya plain
7. Bureya mountain country
8. Amur plain
9. Sikhote-Alin'
10. Ussuri-Khanka depression
11. Sakhalin Island
12. Area of the Amgun and the Uda
13. Okhotsk coastal area
14. Provinces of the extreme northeast
15. Kamchatka Peninsula

responsible for 32 percent. On the Transbaykal side, in the area of 228
the Buryat-Mongol ASSR, approximately 30,000 double centner of
fish are caught annually; in good years even more than 35,000 double
centners of fish are caught. Thus a series of fishing settlements animate
the Transbaykal shore. The most important are Nizhne-Angarsk, 361
which lies on the extreme north east tip, Ust'-Barguzin at the mouth [355]
of the river of the same name, where there is also a fish canning
factory, and, south of this, Goryachinsk, which in addition to fishing [312]
is acquiring a growing importance as a health resort because of its hot
springs.

Baykal Daur

Baykal Daur begins in the west with the Khamar-Daban. This 133
mighty mountain massif, projecting up to 2,217 meters, follows the
southern shore of Lake Baykal. Along this shore, runs the railroad
which encircles Lake Baykal and which is forced to follow all its
windings. This mountain massif is little divided and has predominantly
soft forms with dome-like heights which are seldom rocky. These
heights, as Prassolov describes them (160), give the impression of being

160. Prassolov, L.I. Iuzhnoe Zabaykaliye /Southern

peculiar only to dry climates. At the foot of the Ikatskiy Mountain Range numerous warm springs bubble up; these springs contain above all sulphates. In addition there are mineral lakes, which, like the Alginsk lakes, lies in a basin of sulphate of soda of significant thickness. Below the locality of Barguzin the mountains come right down to the river and shut off the extended valley basin. Here begins the third part of the Barguzin Valley, the breach valley of the Barguzin toward Lake Baykal. On the right side the mountains press forward right to the river and present picturesque, alluring landscapes. On the left side, on the other hand, the mountains withdraw more or less /220/, making free a flat area along the shore. This landscape on the lower course of the river accompanies the river for almost 40 kilometers. Thus the Barguzin Valley presents an extremely remarkable landscape. Epsom salt lakes between alluvial swamps and lakes in the valley basins of rivers rich in water; wide development of sands with dunes and steppe vegetation; traces of desert-like disintegration; permafrost; warm springs; thick taiga on the circumference; snow-covered mountains in the background: all this shows a heaping up of contrasts such as is undoubtedly rarely found on the earth. The area around the upper course of the Barguzin has alluvial sands rich in gold. For the rest this area is traversed only by Tungus reindeer breeders. The other part of the valley basin is an island of settlements in the middle of uninhabited mountain forests. Numerous Russians and Buryat here devote themselves to the breeding of livestock and to very considerable agriculture with irrigation. The rivers coming from the side valleys of the mountain range are used especially for the irrigation of the fields. The center of the main area of settlement is the village-city of Barguzin, which always has several thousand inhabitants. This city lies on the river of the same name. The Barguzin River is also navigable from here down and, via Lake Baykal, it represents the sole connection with the outside world.

[133] [312] [135] [135] [361]

Just north of the mouth of the Barguzin the Svatoy Noz Peninsula adjoins the land. This peninsula forms an island which is 55 kilometers long and is transversed by two mountain ranges which are up to 1,587 meters high. Only later is this island joined to the shore by a flat narrow piece of land. The material for this is supplied by the Barguzin, the heaping up and the alluvium provide for the current and the waves of Lake Baykal. The original view that the peninsula is a continuation of Ol'khon Island has shown itself to be incorrect, as Busch has shown. On the contrary Ol'khon Island is an underwater ridge running to the

the section farthest in of the inner bay has been built up as a naval harbor and is closed to commercial ships. Additional harbor installations lie on the "Eastern Bosporus" and on the outer side of the Shkota Peninsula. In detail the harbor houses the following installations: 361 504

1. Krestovaya Harbor: It stretches at the foot of Krestovaya Mountain, which is 94 meters high, and has quays which are 486 meters long. This harbor is used especially in the winter since it is easiest to keep the waters open here.
2. The Egersheld, which is at the same time a quarantine harbor and which has a quay almost 950 meters long. Here the most active life prevails in the summer. This harbor is specially built up for the turnover of grain, and it has the most modern loading equipment and granaries.
3. The Harbor of the "Voluntary Fleet" (Dobrovolnyi Flot). It received its name from the Organization of the "Voluntary Fleet," which was founded in 1870 and which was the first to take up the task of connecting the mother country with the Far East.
4. The Customs Pier and the so-called "Wide Mole," which takes up the northwestern angle of the Golden Horn.
5. The Commercial Pier with the "Wide Pier" (Shirokiy Pir) on the southern side of the bay. This has extensive track installations and the largest storehouses. The quay installations are 1 kilometer long.
6. The Wood Harbor, which lies somewhat farther south on Cape Churkin.
7. The Ussuri Railroad Harbor on the western side of the Shkota Peninsula. This has extensive installations for oil and petroleum.
8. The Semyonovskiy Bazar, which likewise lies on Amur Bay. It serves coastal traffic predominantly.

All the quay installations together have a total length of more than 4 kilometers, and the network of tracks, which span the harbor and all its installations, is 335 kilometers long (1937). From 1933 to 1939 there was a further building up of the harbor, and thus it is in a position to handle an annual turnover of 4 to 5 million tons. In the first period of the development of Vladivostok, the supplying of water caused some difficulties. But these have now been overcome by means of a large water storage installation on the /275/ /Sketch Map of the Harbor of Vladivostok/ /276/ so-called "Second Little River" (Vtoraya Rechka) and by means of the filtering installation, holding 100,000 tons, on the inner edge of Ulis Bay, into which Lipovyy Brook flows. 361 3120

133 andesite type (172). Not far from the last volcano mentioned, the

172. Savrinkii, A. N. Piat' let geologicheskikh isledovanii Kamchatki /Five Years of Geological Research in Kamchatka/. Problems of Soviet Geology, 1935.

mighty but quiet Koryatskaya Sopka rises to a height of 3,457 meters, and next to it is the Sopka Zhupanova (2,929 meters). South of Avacha Bay the mountain range has many valleys because of the rivers streaming off radially in all directions; but down to the southern tip of the peninsula smaller extinguished and active volcanos lie on the mountain range. The height of the mountains here rarely exceeds 900 meters. The last group of volcano mountains, with the Ilinskaya (855 meters) and the Kambal'naya Sopka (1,615 meters), rises over an extensive region of mountains, which are gently inclined and like ruins, in the extreme south around Kuril'skoye Lake, which is 306 meters deep and which represents an old crater.

312 Related to the phenomenon of volcanos is Kamchatka's wealth of warm mineral springs. Of these the Nalychevkiye springs between Avacha Bay and the Sopka Zhupanova are worthy of note. These springs come from an andesite layer with a temperature of 72°, and they contain a great deal of borium and arsenic, which is deposited in terraces. Interesting pictures develop in the winter when the steam rains down in the environs and forms fantastic ice figures.

133 The east coast, in contrast to the west coast, is richly divided up by inroads. The projecting peninsulas mostly end with a steep, rocky descent to the sea. The bays, on the other hand, have a broad, flat, treeless strip, which has its greatest size at Litke Bay. Avacha Bay, too, on which Petropavlovsk lies, is surrounded by a coastal plain, which, however, is narrower here.

[32] Enclosed by the high lines of mountain ranges, which protect it from the damp, cold, foggy, snowy, and rainy climate of the coastal sides, the central Kamchatka valley is distinguished by a more continental /298/ climate, which, dispite the harsh winter, is found more pleasant by man than the constantly damp coolness of the coast. The river valley itself is swampy but it is accompanied by a grass steppe, occupied by a spotty stock of birches. This grass steppe offers good conditions for breeding livestock and is not unfavorable even for agriculture. After the break-through to the east the Kamchatka River ends in a wide, treeless delta, which has a special economic significance because of

The greatest part of the population was concentrated on the southern islands, where limited cultivation of rye, wheat, barley and types of vegetables is possible. The principal occupations of the inhabitants--if we can judge from conditions before 1945--were, however, fishing and the hunting of sea mammals. Every summer the population was enlarged by around 10,000 fishermen, who came from Japan and occupied the islands for the catching season. In terms of the value of its yield, fishing was in first place by far, but the catching of walruses also played no insignificant role. The whales, after their summer stay in the Bering Sea, moved along the Kurils in the fall to their winter places in the southern part of the Sea of Okhotsk. In addition, seals and sea lions were also hunted.

After the islands were taken over by the Soviet Union and the greater part of the Japanese had been evacuated, numerous central fishing stations were founded on the islands. Furthermore, a walrus-catching fleet was stationed there, and a walrus-processing works was erected on one island. It is also planned to take up the breeding of fur-bearing animals such as the Japanese had begun.

Because of their volcanic character, the Kurils have numerous hot springs, which for the most part contain minerals. In natural resources the Kurils are poor; only a few of the islands contain rather large sulfur deposits. Exploitation of these deposits for the Soviet economy is being considered.

/309/ BIBLIOGRAPHY

I. Bibliographies

Kerner, R.J. Northeastern Asia: A Selected Bibliography. 2 vols. Berkeley, 1939.

Leimbach, W. "Nordasien: Schrifttumsübersicht über die Erscheinungsjahre 1926 bis 1937" /North Asia: Bibliography of the years 1926 to 1937/, Geographisches Jahrbuch /Geographical Yearbook/, Vol. 53. 1938.

II. Collected Works With Various Authors

1. Aziatskaia Rossiia /Asiatic Russia/. Collection, processed by the